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## ENTERED

RAW SEQUENCE LISTING

3 <110> APPLICANT: Umezawa, Akihiro Hata, Jun-Ichi

4

PATENT APPLICATION: US/09/749,728B

DATE: 04/04/2002 TIME: 14:00:07

Input Set : A:\766.43 Sequence Listing.txt Output Set: N:\CRF3\04042002\1749728B.raw

```
Fukuda, Keiichi
      5
              Ogawa, Satoshi
      6
      7
              Sakurada, Kazuhiro
              Gojo, Satoshi
      9
              Yamada, Yoji
     11 <120> TITLE OF INVENTION: THE CELL HAVING THE POTENTIALITY OF DIFFERENTIATION INTO
CARDIOMYOCYTES
     13 <130> FILE REFERENCE: 00766.000043
     15 <140> CURRENT APPLICATION NUMBER: US/09/749,728B
     16 <141> CURRENT FILING DATE: 2001-09-17
     18 <150> PRIOR APPLICATION NUMBER: H11-372826
     19 <151> PRIOR FILING DATE: 1999-12-28
     21 <150> PRIOR APPLICATION NUMBER: PCT-JP00-01148
     22 <151> PRIOR FILING DATE: 2000-02-28
     24 <150> PRIOR APPLICATION NUMBER: PCT-JP00-07741
     25 <151> PRIOR FILING DATE: 2000-11-02
     27 <160> NUMBER OF SEQ ID NOS: 80
     29 <170> SOFTWARE: PatentIn Ver.2.0
     31 <210> SEQ ID NO: 1
     32 <211> LENGTH: 411
     33 <212> TYPE: PRT
     34 <213> ORGANISM: Homo sapiens
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     38 Gly Glu Ser Ala Ala Gly Gly Ser Gly Ala Gly Gly Asp Ser Ala Ile
                     20
                                         25
     40 Glu Gln Gly Gly Gln Gly Ser Ala Leu Ala Pro Ser Pro Val Ser Gly
     41
     42 Val Arg Arg Glu Gly Ala Arg Gly Gly Gly Arg Gly Arg Gly Arg Trp
    43
     44 Lys Gln Ala Gly Arg Gly Gly Gly Val Cys Gly Arg Gly Arg Gly Arg
     46 Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg
     48 Pro Pro Ser Gly Gly Ser Gly Leu Gly Gly Asp Gly Gly Gly Cys Gly
                   100
                                        105
                                                            110
    50 Gly Gly Gly Ser Gly Gly Gly Ala Pro Arg Arg Glu Pro Val Pro
               115
                                    120
                                                        125
    52 Phe Pro Ser Gly Ser Ala Gly Pro Gly Pro Arg Gly Pro Arg Ala Thr
                                135
     54 Glu Ser Gly Lys Arg Met Asp Cys Pro Ala Leu Pro Pro Gly Trp Lys
```

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55	145					150					155					160	
56	Lys	Glu	Glu	Val	Ile	Arg	Lys	Ser	Gly	Leu	Ser	Ala	Gly	Lys	Ser	Asp	
57	_				165		_		-	170			-	-	175	•	
58	Val	Tyr	Tyr	Phe	Ser	Pro	Ser	Gly	Lys	Lys	Phe	Arq	Ser	Lys	Pro	Gln	
59		•	-	180				•	185	•		,		190			
60	Leu	Ala	Arq	Tyr	Leu	Gly	Asn	Thr	Val	Asp	Leu	Ser	Ser	Phe	Asp	Phe	
61			195	-		4		200		[			205				
	Ara	Thr		Lvs	Met	Met	Pro		Lvs	Len	Gln	Lvs		T.VS	Gln	Δrσ	
63	9	210	011				215	DCI	275	пси	0111	220	11511	1175	OIII	1119	
	T.011		Δen	Δen	Pro	Leu		Gln	λen	Twe	Clv		Dro	λcn	T 011	λan	
	225	111 9	21011	,,pp	110	230	HOII	OIII	ASII	цуз	235	цуз	FIU	изр	пец	240	
		Пhт	LOU	Dro	T10		Cln	Пhъ	λla	Com		Dha	T	C1 n	Dwo		
67	1111	1111	Leu	PIU	245	Arg	GIII	TIII	Ата		тте	Pne	гуѕ	GIII		val	
	m1	T	77- 1	m b		TT -	D	<b>a</b>		250	**- 1	_		_	255		
	Thr	гàг	vaı		Asn	His	Pro	ser		Lys	Val	Lys	Ser	_	Pro	Gln	
69	_		_	260	~1	_	_		265		_			270		_	
	Arg	Met		GIu	GIn	Pro	Arg		Leu	Phe	Trp	GLu	_	Arg	Leu	Gln	
71			275					280					285				
72	Gly		Ser	Ala	Ser	Asp		Thr	Glu	Gln	Ile	Ile	Lys	Thr	Met	Glu	
73		290					295					300					
74	Leu	Pro	Lys	Gly	Leu	Gln	Gly	Val	Gly	Pro	Gly	Ser	Asn	Asp	Glu	Thr	
75	305					310					315					320	
76	Leu	Leu	Ser	Ala	Val	Ala	Ser	Ala	Leu	His	Thr	Ser	Ser	Ala	Pro	Ile	
77					325					330					335		
78	Thr	Gly	Gln	Val	Ser	Ala	Ala	Val	Glu	Lys	Asn	Pro	Ala	Val	Trp	Leu	
79				340					345	-				350	-		
80	Asn	Thr	Ser	Gln	Pro	Leu	Cys	Lys	Ala	Phe	Ile	Val	Thr		Glu	Asp	
81			355				•	360					365				
	Ile	Ara		Gln	Glu	Glu	Ara		Gln	Gln	Val	Ara		Lvs	T.eu	Glu	
83		370	-1-		014		375		0111	0		380	-10	1,5	LCu	Olu	
	Glu		Len	Met	Δla	Asp		I.eu	Ser	Δrσ	Δla		Δen	Thr	Glu	Glu	
	385	mu	LCu	ricc	niu	390	110	Leu	DCI	лту	395	лти	тэр	1111	GIU	400	
		λen	Tla	Glu	Mot	Asp	Sor	C111	7 cn	C111						400	
87	Mec	изр	116	Giu	405	изр	261	GLY	изр		ніа						
	-210	\ CT		NO.						410							
				NO:													
				I: 12	233												
			PE:														
					Homo	sap	iens	5									
			ATUE														
				EY:													
						CION:	(1)	(1	.236)								
				ICE:													
96	atg	cgc	gcg	cac	ccg	ggg	gga	ggc	cgc	tgc	tgc	ccg	gag	cag	gag	gag	48
- 97	Met	Arg	Ala	${ t His}$	Pro	Gly	Gly	Gly	Arg	Cys	Cys	Pro	Glu	Gln	Glu	Glu	
98	1				5					10					15		
99	ggg	gag	agt	gcg	gcg	ggc	ggc	agc	ggc	gct	ggc	ggc	gac	tcc	gcc	ata	96
																Ile	
101				20		_	_		25		_	-		30			
		caq	gga			gac	ago	gca	cto	gcc	cca	rted	cco			ggc	144
103	Glu	. Gln	Gĺv	ĞÎv	Gln	ĞÎv	Ser	· Āla	Leu	Ala	Pro	Ser	Pro	Val	Ser	Gly	
-			1	1	J = 1.	1										<u> 1</u>	

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104			35					40					45				
105	gtg	cgc	agg	gaa	ggc	gct	cgg	ggc	ggc	ggc	cgt	ggc	cgg	ggg	cgg	tgg	192
106	Val	Arg	Arg	Glu	Gly	Ala	Arg	Gly	Gly	Gly	Arg	Gly	Arg	Gly	Arg	Trp	
107		50					55					60					
	aag	-												-			240
	Lys	Gln	Ala	Gly	Arg	Gly	Gly	Gly	Val	Cys	Gly	Arg	Gly	Arg	Gly	_	
110						70					75					80	
	ggc															-	288
	Gly	Arg	GLy	Arg		Arg	GLy	Arg	Gly		Gly	Arg	GLy	Arg	_	Arg	
113					85			- 4 4		90					95		226
	CCC	_	_			-					_				_		336
	Pro	Pro	ser		GTA	ser	GTĀ	ьeu		GTÄ	Asp	GIY	GTÀ		Cys	GLY	
116		~~~		100	~~+	~~~	~~~	~~~	105		~~~	~~~	~~~	110			204
	ggc													_	_		384
119	Gly	СТУ	115	ser	СТУ	СТА	GTA	120	Ата	PIO	Arg	Arg	125	PIO	Val	PIO	
	ttc	cca		aaa	200	aca	ααα		aaa	000	a a a	aas		caa	aaa	200	432
	Phe																432
122	rne	130	Ser	GLY	SCI	пта	135	110	GLY	110	пту	140	110	пту	пта	1111	
	gag		aaa	ааσ	aαα	atα		tac	cca	acc	ctc		ccc	gga	taa	aad	480
	Glu																100
	145	001	011	270	9	150	-10 F	012			155			0.21		160	
	aag	gag	qaa	ata	atc		aaa	tct	aaa	cta		act	aac	aaq	agc		528
	Lys																
128	•				165		-		•	170			•	•	175	-	
129	gtc	tac	tac	ttc	agt	cca	agt	ggt	aag	aag	ttc	aga	agc	aag	cct	cag	576
	Val																
131			_	180					185	_		_		190			
132	ttg	gca	agg	tac	ctg	gga	aat	act	gtt	gat	ctc	agc	agt	ttt	gac	ttc	624
133	Leu	Ala	Arg	$\mathtt{Tyr}$	Leu	Gly	Asn	Thr	Val	Asp	Leu	Ser	Ser	Phe	Asp	Phe	
134			195					200					205				
135	aga	act	gga	aag	atg	atg	cct	agt	aaa	tta	cag	aag	aac	aaa	cag	aga	672
	Arg		Gly	Lys	Met	Met		Ser	Lys	Leu	Gln	_	Asn	Lys	Gln	Arg	
137		210					215					220					
	ctg	-		-													720
	Leu	Arg	Asn	Asp	Pro		Asn	Gln	Asn	Lys	_	Lys	Pro	Asp	Leu		
_	225				- 1 4	230					235					240	7.00
	aca		_			_			-						_	-	768
	Thr	Thr	Leu	Pro		Arg	GIn	Thr	Ala		11e	Pne	ьys	GIN		vaı	
143	200		~+~		245	aa+	~~+	n	+	250	~+ ~		+	~~~	255		016
	acc																816
145	Thr	пуз	v a T	260	USII	птъ	FIO	SET	265	пур	Val	пуз	Set	270	FIO	GTII	
	cga	ata	aat		Cad	CCa	cat	cad		ttc	taa	αaα	aan		cta	caa	864
	Arg																004
149	1119	1156	275	JIU	0111	110	**** 9	280	LCu	1110	++1	JIU	285	41± 9	Lou	J-11	
	gga	ct.t		gca	tca	gat.	αta		σaa	caa	att	at.a		acc	ato	gaa	912
	Gly																
152	4	290	•	·	•		295	•		·		300	•				

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						caa											960
		Pro	Lys	Gly	Leu	Gln	Gly	Val	Gly	Pro		Ser	Asn	Asp	Glu		
	305					310					315					320	
						gcc											1008
	Leu	Leu	ser	Ala		Ala	Ser	Ala	Leu		Thr	Ser	Ser	Ala		Ile	•
158	2.02	~~~	~~~	~+ ~	325	~a+	~~+	~+~	~~~	330					335		1056
						gct Ala											1056
161	1111	GIY	GIII	340	ser	Ата	нта	Val	345	гу	ASII	PIO	Ald	350	ттр	ьеu	
	aac	aca	tot		CCC	ctc	tac	aaa		+++	att	ata	202		m = =	α2.C	1104
						Leu											1104
164			355	0111		Lou	0,0	360		1 110	110	<b>,</b> 441	365	шэр	Olu	пор	
	atc	aqq	aaa	caq	gaa	gag	cqa	qta	caq	caa	gta	cac		aaa	tta	gaa	1152
						Ğlu											
167		370	_				375					380	•	•			
168	gaa	gca	ctg	atg	gca	gac	atc	ttg	tcg	cga	gct	gct	gat	aca	gaa	gag	1200
169	Glu	Ala	Leu	Met	Ala	Asp	Ile	Leu	Ser	Arg	Ala	Ala	Asp	Thr	Glu	Glu	
	385					390					395					400	
				-	_	gac	_		-	-	_						1233
	Met	Asp	Ile	Glu		Asp	Ser	Gly	Asp		Ala						
173					405					410							
	<210																
	<211 <212				96												
T / D	$\sim 2 \pm 1$	42 1	7 Pr.:														
177	Z213				Home		oi on a	~									
		3> OI	RGANI	ISM:		sap	piens	5									
178	<400	3> OI O <b>&gt; S</b> I	RGANI E <b>QUE</b> 1	SM:	3				I.e.ii	T.e.u	Gly	Cve	Glv	Ψwr	Τ.Διι	Δla	
178 179	<b>&lt;40</b> 0 Met	3> OI O <b>&gt; S</b> I	RGANI E <b>QUE</b> 1	SM:	3 Ala	c sar			Leu		Gly	Cys	Gly	Tyr		Ala	
178 179 180	<b>&lt;400</b> Met	3> 01 <b>)&gt; S1</b> Arg	RGANI E <b>QUEN</b> Thr	ISM: ICE: Leu	3 Ala 5	Cys	Leu	Leu		10					15		
178 179 180	<b>&lt;400</b> Met	3> 01 <b>)&gt; S1</b> Arg	RGANI E <b>QUEN</b> Thr	ISM: ICE: Leu	3 Ala 5		Leu	Leu		10					15		
178 179 180 181 182	<b>400</b> Met 1 His	3> 01 <b>)&gt; S1</b> Arg Val	RGANI E <b>QUEN</b> Thr Leu	ISM: ICE: Leu Ala 20	3 Ala 5 Glu	Cys Glu	Leu Ala	Leu Glu	Ile 25	10 Pro	Arg	Glu	Val	Ile 30	15 Glu	Arg	
178 179 180 181 182	<b>400</b> Met 1 His	3> 01 <b>)&gt; S1</b> Arg Val	RGANI E <b>QUEN</b> Thr Leu	ISM: ICE: Leu Ala 20	3 Ala 5 Glu	Cys	Leu Ala	Leu Glu	Ile 25	10 Pro	Arg	Glu	Val	Ile 30	15 Glu	Arg	
178 179 180 181 182 183 184	Met 1 His Leu	3> OI D> SI Arg Val Ala	RGANI EQUEN Thr Leu Arg 35	ISM: NCE: Leu Ala 20 Ser	3 Ala 5 Glu Gln	Cys Glu	Leu Ala His	Leu Glu Ser 40	Ile 25 Ile	10 Pro Arg	Arg Asp	Glu Leu	Val Gln 45	Ile 30 Arg	15 Glu Leu	Arg Leu	
178 179 180 181 182 183 184 185 186	Met 1 His Leu Glu	3> OH D> SI Arg Val Ala Ile 50	RGANI EQUEN Thr Leu Arg 35 Asp	ISM: VCE: Leu Ala 20 Ser	3 Ala 5 Glu Gln Val	Cys Glu Ile Gly	Leu Ala His Ser 55	Leu Glu Ser 40 Glu	Ile 25 Ile Asp	10 Pro Arg Ser	Arg Asp Leu	Glu Leu Asp 60	Val Gln 45 Thr	Ile 30 Arg Ser	15 Glu Leu Leu	Arg Leu Arg	
178 179 180 181 182 183 184 185 186	Met 1 His Leu Glu	3> OH D> SI Arg Val Ala Ile 50	RGANI EQUEN Thr Leu Arg 35 Asp	ISM: VCE: Leu Ala 20 Ser	3 Ala 5 Glu Gln Val	Cys Glu Ile Gly Ala	Leu Ala His Ser 55	Leu Glu Ser 40 Glu	Ile 25 Ile Asp	10 Pro Arg Ser	Arg Asp Leu	Glu Leu Asp 60	Val Gln 45 Thr	Ile 30 Arg Ser	15 Glu Leu Leu	Arg Leu Arg	
178 179 180 181 182 183 184 185 186 187	Met 1 His Leu Glu Ala 65	3> OH D> SI Arg Val Ala Ile 50	RGANI EQUEN Thr Leu Arg 35 Asp	ISM: NCE: Leu Ala 20 Ser Ser Val	3 Ala 5 Glu Gln Val	Cys Glu Ile Gly Ala 70	Leu Ala His Ser 55 Thr	Leu Glu Ser 40 Glu Lys	Ile 25 Ile Asp	10 Pro Arg Ser Val	Arg Asp Leu Pro 75	Glu Leu Asp 60 Glu	Val Gln 45 Thr	Ile 30 Arg Ser	15 Glu Leu Leu Pro	Arg Leu Arg Leu 80	
178 179 180 181 182 183 184 185 186 187 188	Met 1 His Leu Glu Ala 65	3> OH D> SI Arg Val Ala Ile 50	RGANI EQUEN Thr Leu Arg 35 Asp	ISM: NCE: Leu Ala 20 Ser Ser Val	3 Ala 5 Glu Gln Val His	Cys Glu Ile Gly Ala	Leu Ala His Ser 55 Thr	Leu Glu Ser 40 Glu Lys	Ile 25 Ile Asp	10 Pro Arg Ser Val Glu	Arg Asp Leu Pro 75	Glu Leu Asp 60 Glu	Val Gln 45 Thr	Ile 30 Arg Ser	15 Glu Leu Leu Pro Val	Arg Leu Arg Leu 80	
178 179 180 181 182 183 184 185 186 187 188 189	Met 1 His Leu Glu Ala 65 Pro	3> OH D> SI Arg Val Ala Ile 50 His	RGANI EQUEN Thr Leu Arg 35 Asp Gly	ISM: VCE: Leu Ala 20 Ser Ser Val Arg	3 Ala 5 Glu Gln Val His Lys 85	Cys Glu Ile Gly Ala 70 Arg	Leu Ala His Ser 55 Thr	Leu Glu Ser 40 Glu Lys Ile	Ile 25 Ile Asp His Glu	10 Pro Arg Ser Val Glu 90	Arg Asp Leu Pro 75 Ala	Glu Leu Asp 60 Glu Val	Val Gln 45 Thr Lys Pro	Ile 30 Arg Ser Arg	15 Glu Leu Leu Pro Val 95	Arg Leu Arg Leu 80 Cys	
178 179 180 181 182 183 184 185 186 187 188 189 190	Met 1 His Leu Glu Ala 65 Pro	3> OH D> SI Arg Val Ala Ile 50 His	RGANI EQUEN Thr Leu Arg 35 Asp Gly	ISM: VCE: Leu Ala 20 Ser Ser Val Arg	3 Ala 5 Glu Gln Val His Lys 85	Cys Glu Ile Gly Ala 70	Leu Ala His Ser 55 Thr	Leu Glu Ser 40 Glu Lys Ile	Ile 25 Ile Asp His Glu Ile	10 Pro Arg Ser Val Glu 90	Arg Asp Leu Pro 75 Ala	Glu Leu Asp 60 Glu Val	Val Gln 45 Thr Lys Pro	Ile 30 Arg Ser Arg Ala Val	15 Glu Leu Leu Pro Val 95	Arg Leu Arg Leu 80 Cys	
178 179 180 181 182 183 184 185 186 187 188 189 190 191	Met 1 His Leu Glu Ala 65 Pro Lys	3> OF ST Arg Val Ala Ile 50 His Ile Thr	RGANI Thr Leu Arg 35 Asp Gly Arg	ISM: VCE: Leu Ala 20 Ser Ser Val Arg Thr 100	Ala 5 Glu Gln Val His Lys 85 Val	Cys Glu Ile Gly Ala 70 Arg	Leu Ala His Ser 55 Thr Ser Tyr	Leu Glu Ser 40 Glu Lys Ile Glu	Ile 25 Ile Asp His Glu Ile 105	10 Pro Arg Ser Val Glu 90 Pro	Arg Asp Leu Pro 75 Ala Arg	Glu Leu Asp 60 Glu Val Ser	Val Gln 45 Thr Lys Pro Gln	Ile 30 Arg Ser Arg Ala Val 110	15 Glu Leu Leu Pro Val 95 Asp	Arg Leu Arg Leu 80 Cys	
178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193	Met 1 His Leu Glu Ala 65 Pro Lys	3> OF ST Arg Val Ala Ile 50 His Ile Thr	RGANI Thr Leu Arg 35 Asp Gly Arg Arg	ISM: VCE: Leu Ala 20 Ser Ser Val Arg Thr 100	Ala 5 Glu Gln Val His Lys 85 Val	Cys Glu Ile Gly Ala 70 Arg	Leu Ala His Ser 55 Thr Ser Tyr	Leu Glu Ser 40 Glu Lys Ile Glu Trp	Ile 25 Ile Asp His Glu Ile 105	10 Pro Arg Ser Val Glu 90 Pro	Arg Asp Leu Pro 75 Ala Arg	Glu Leu Asp 60 Glu Val Ser	Val Gln 45 Thr Lys Pro Gln Glu	Ile 30 Arg Ser Arg Ala Val 110	15 Glu Leu Leu Pro Val 95 Asp	Arg Leu Arg Leu 80 Cys	
178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194	Met 1 His Leu Glu Ala 65 Pro Lys Thr	3> OI Arg Val Ala Ile 50 His Ile Thr	RGANI Thr Leu Arg 35 Asp Gly Arg Arg	ISM: VCE: Leu Ala 20 Ser Ser Val Arg Thr 100 Asn	Ala 5 Glu Gln Val His Lys 85 Val	Cys Glu Ile Gly Ala 70 Arg Ile Leu	Leu Ala His Ser 55 Thr Ser Tyr	Leu Glu Ser 40 Glu Lys Ile Glu Trp 120	Ile 25 Ile Asp His Glu Ile 105 Pro	10 Pro Arg Ser Val Glu 90 Pro	Arg Asp Leu Pro 75 Ala Arg Cys	Glu Leu Asp 60 Glu Val Ser	Val Gln 45 Thr Lys Pro Gln Glu 125	Ile 30 Arg Ser Arg Ala Val 110 Val	15 Glu Leu Leu Pro Val 95 Asp	Arg Leu Arg Leu 80 Cys Pro Arg	
178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194	Met 1 His Leu Glu Ala 65 Pro Lys Thr	3> OI Arg Val Ala Ile 50 His Ile Thr	RGANI Thr Leu Arg 35 Asp Gly Arg Arg	ISM: VCE: Leu Ala 20 Ser Ser Val Arg Thr 100 Asn	Ala 5 Glu Gln Val His Lys 85 Val	Cys Glu Ile Gly Ala 70 Arg	Leu Ala His Ser 55 Thr Ser Tyr Ile	Leu Glu Ser 40 Glu Lys Ile Glu Trp 120	Ile 25 Ile Asp His Glu Ile 105 Pro	10 Pro Arg Ser Val Glu 90 Pro	Arg Asp Leu Pro 75 Ala Arg Cys	Glu Leu Asp 60 Glu Val Ser Val Cys	Val Gln 45 Thr Lys Pro Gln Glu 125	Ile 30 Arg Ser Arg Ala Val 110 Val	15 Glu Leu Leu Pro Val 95 Asp	Arg Leu Arg Leu 80 Cys Pro Arg	
178 179 180 181 182 183 184 185 186 187 188 190 191 192 193 194 195	Met 1 His Leu Glu Ala 65 Pro Lys Thr Cys	3> OI Arg Val Ala Ile 50 His Ile Thr Ser Thr 130	RGANI EQUENT Thr Leu Arg 35 Asp Gly Arg Arg Ala 115 Gly	ISM: VCE: Leu Ala 20 Ser Ser Val Arg Thr 100 Asn Cys	Ala 5 Glu Gln Val His Lys 85 Val Phe Cys	Cys Glu Ile Gly Ala 70 Arg Ile Leu Asn	Leu Ala His Ser 55 Thr Ser Tyr Ile Thr 135	Leu Glu Ser 40 Glu Lys Ile Glu Trp 120 Ser	Ile 25 Ile Asp His Glu Ile 105 Pro	10 Pro Arg Ser Val Glu 90 Pro Pro	Arg Leu Pro 75 Ala Arg Cys Lys	Glu Leu Asp 60 Glu Val Ser Val Cys 140	Val Gln 45 Thr Lys Pro Gln Glu 125 Gln	Ile 30 Arg Ser Arg Ala Val 110 Val	15 Glu Leu Leu Pro Val 95 Asp Lys Ser	Arg Leu Arg Leu 80 Cys Pro Arg	
178 179 180 181 182 183 184 185 186 187 188 190 191 192 193 194 195	Met 1 His Leu Glu Ala 65 Pro Lys Thr Cys	3> OI Arg Val Ala Ile 50 His Ile Thr Ser Thr 130	RGANI EQUENT Thr Leu Arg 35 Asp Gly Arg Arg Ala 115 Gly	ISM: VCE: Leu Ala 20 Ser Ser Val Arg Thr 100 Asn Cys	Ala 5 Glu Gln Val His Lys 85 Val Phe Cys	Cys Glu Ile Gly Ala 70 Arg Ile Leu	Leu Ala His Ser 55 Thr Ser Tyr Ile Thr 135	Leu Glu Ser 40 Glu Lys Ile Glu Trp 120 Ser	Ile 25 Ile Asp His Glu Ile 105 Pro	10 Pro Arg Ser Val Glu 90 Pro Pro	Arg Leu Pro 75 Ala Arg Cys Lys	Glu Leu Asp 60 Glu Val Ser Val Cys 140	Val Gln 45 Thr Lys Pro Gln Glu 125 Gln	Ile 30 Arg Ser Arg Ala Val 110 Val	15 Glu Leu Leu Pro Val 95 Asp Lys Ser	Arg Leu Arg Leu 80 Cys Pro Arg	
178 179 180 181 182 183 184 185 186 187 188 190 191 192 193 194 195 196 197	Met 1 His Leu Glu Ala 65 Pro Lys Thr Cys Val 145	3> OF ST Arg Val Ala Ile 50 His Ile Thr Ser Thr 130 His	RGANI EQUENT Thr Leu Arg 35 Asp Gly Arg Ala 115 Gly	ISM: VCE: Leu Ala 20 Ser Val Arg Thr 100 Asn Cys Arg	Ala 5 Glu Gln Val His Lys 85 Val Phe Cys	Cys Glu Ile Gly Ala 70 Arg Ile Leu Asn	Leu Ala His Ser 55 Thr Ser Tyr Ile Thr 135 Lys	Leu Glu Ser 40 Glu Lys Ile Glu Trp 120 Ser Val	Ile 25 Ile Asp His Glu Ile 105 Pro Ser Ala	10 Pro Arg Ser Val Glu 90 Pro Pro Val Lys	Arg Asp Leu Pro 75 Ala Arg Cys Lys Val 155	Glu Leu Asp 60 Glu Val Ser Val Cys 140 Glu	Val Gln 45 Thr Lys Pro Gln Glu 125 Gln Tyr	Ile 30 Arg Ser Arg Ala Val 110 Val Pro	15 Glu Leu Leu Pro Val 95 Asp Lys Ser Arg	Arg Leu Arg Leu 80 Cys Pro Arg Arg Lys 160	

201 Cys Ala Cys Ala Thr Thr Ser Leu Asn Pro Asp Tyr Arg Glu Glu Asp

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W>							o Du,		_									
" ,				AME/I		CDS												
				THER			T T () N	. (1	\ / '	5011								
W>							IION	. (1	) ( .	231)								
W>							+~~	~+~	~+~	~+~	a+-		<b>.</b>					4.0
										ctc								48
			Arg	Thr	Leu	Ala	Cys	Leu	Leu	Leu		GIY	Cys	GTÄ	Tyr		Ala	
	215					5					10					15		
			-	_	-		-	_		atc		-						96
		His	Val	Leu		Glu	Glu	Ala	Glu	Ile	Pro	Arg	Glu	Val		Glu	Arg	
	218				20					25					30			
										atc								144
	220	Leu	Ala	Arg	Ser	Gln	Ile	His	Ser	Ile	Arg	Asp	Leu	Gln	Arg	Leu	Leu	
	221			35					40					45				
	222	gag	ata	gac	tcc	gta	ggg	agt	gag	gat	tct	ttg	gac	acc	agc	ctg	aga	192
	223	Glu	Ile	Asp	Ser	Val	Gly	Ser	Glu	Asp	Ser	Leu	Asp	Thr	Ser	Leu	Arg	
	224		50					55					60					
	225	gct	cac	ggg	gtc	cac	gcc	act	aag	cat	gtg	ccc	gag	aag	cgg	CCC	ctg	240
	226	Ala	His	Gly	Val	His	Ala	Thr	Lys	His	Val	Pro	Glu	Lys	Arg	Pro	Leu	
	227	65					70		_			75		_	_		80	
	228	ccc	att	cqq	aqq	aaq	aqa	aqc	atc	gag	qaa	qct	qtc	ccc	gct	qtc	tac	288
										Glu								
	230			,	_	85	,				90					95	1	
		aaq	acc	agg	acq	atc	att	tac	gag	att	cct	caa	agt.	cag	atc	gac	ccc	336
		_			_	_				Ile			_	_	_	-		
	233	-1-			100			-1-		105		5			110	<sub>F</sub>		
		acσ	tac	acc		ttc	cta	atc	tαα	CCC	cca	tac	ata	αaα		aaa	cac	384
										Pro								301
	236		001	115	11011	1 110	Deu	110	120	110	110	Cys	vul	125	val	цуз	nrg	
		tac	200		taa	tac	220	aca		agt	ata	220	taa		000	+00	000	432
										Ser								432
	239	Cys	130	СТУ	Суз	Cys	ASII	135	261	261	Val	пуъ	140	GIII	PIU	261	ALY	
		a+ a					~+~		~+~	~~~	~	~+~			-+-			400
										gcc								480
			HIS	HIS	Arg	ser		Lys	val	Ala	ьуs		GIU	Tyr	vaı	Arg		
		145					150					155					160	500
										gtg								528
		Lys	Pro	Lys	Leu	_	GLu	Val	GIn	Val	_	Leu	Glu	GLu	His		Glu	
	245					165					170					175		
										aat								576
		Cys	Ala	Cys		Thr	Thr	Ser	Leu	Asn	Pro	Asp	Tyr	Arg		Glu	Asp	
	248				180					185					190			
				gtg														588
	250	Thr	Asp	Val	Arg													

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## VERIFICATION SUMMARYDATE: 04/04/2002PATENT APPLICATION:US/09/749,728BTIME: 14:00:08

Input Set : A:\766.43 Sequence Listing.txt
Output Set: N:\CRF3\04042002\1749728B.raw

L:35 M:283 W: Missing Blank Line separator, <400> field identifier L:92 M:283 W: Missing Blank Line separator, <220> field identifier L:95 M:283 W: Missing Blank Line separator, <400> field identifier L:178 M:283 W: Missing Blank Line separator, <400> field identifier L:209 M:283 W: Missing Blank Line separator, <220> field identifier L:212 M:283 W: Missing Blank Line separator, <400> field identifier L:256 M:283 W: Missing Blank Line separator, <400> field identifier L:292 M:283 W: Missing Blank Line separator, <220> field identifier L:295 M:283 W: Missing Blank Line separator, <400> field identifier L:347 M:283 W: Missing Blank Line separator, <400> field identifier L:372 M:283 W: Missing Blank Line separator, <220> field identifier L:375 M:283 W: Missing Blank Line separator, <400> field identifier L:410 M:283 W: Missing Blank Line separator, <400> field identifier L:457 M:283 W: Missing Blank Line separator, <220> field identifier L:460 M:283 W: Missing Blank Line separator, <400> field identifier L:528 M:283 W: Missing Blank Line separator, <400> field identifier L:589 M:283 W: Missing Blank Line separator, <220> field identifier L:592 M:283 W: Missing Blank Line separator, <400> field identifier L:681 M:283 W: Missing Blank Line separator, <400> field identifier L:750 M:283 W: Missing Blank Line separator, <220> field identifier L:753 M:283 W: Missing Blank Line separator, <400> field identifier L:854 M:283 W: Missing Blank Line separator, <400> field identifier L:905 M:283 W: Missing Blank Line separator, <220> field identifier L:908 M:283 W: Missing Blank Line separator, <400> field identifier L:982 M:283 W: Missing Blank Line separator, <400> field identifier L:1046 M:283 W: Missing Blank Line separator, <220> field identifier L:1049 M:283 W: Missing Blank Line separator, <400> field identifier L:1144 M:283 W: Missing Blank Line separator, <400> field identifier L:1215 M:283 W: Missing Blank Line separator, <220> field identifier L:1218 M:283 W: Missing Blank Line separator, <400> field identifier L:1322 M:283 W: Missing Blank Line separator, <400> field identifier L:1355 M:283 W: Missing Blank Line separator, <220> field identifier L:1358 M:283 W: Missing Blank Line separator, <400> field identifier L:1405 M:283 W: Missing Blank Line separator, <400> field identifier L:1438 M:283 W: Missing Blank Line separator, <220> field identifier L:1441 M:283 W: Missing Blank Line separator, <400> field identifier L:1488 M:283 W: Missing Blank Line separator, <400> field identifier L:1545 M:283 W: Missing Blank Line separator, <220> field identifier L:1548 M:283 W: Missing Blank Line separator, <400> field identifier L:1631 M:283 W: Missing Blank Line separator, <400> field identifier L:1690 M:283 W: Missing Blank Line separator, <220> field identifier L:1693 M:283 W: Missing Blank Line separator, <400> field identifier L:1779 M:283 W: Missing Blank Line separator, <400> field identifier L:1839 M:283 W: Missing Blank Line separator, <220> field identifier L:1842 M:283 W: Missing Blank Line separator, <400> field identifier L:1931 M:283 W: Missing Blank Line separator, <400> field identifier L:2078 M:283 W: Missing Blank Line separator, <220> field identifier L:2081 M:283 W: Missing Blank Line separator, <400> field identifier

DATE: 04/04/2002

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/749,728B TIME: 14:00:08

Input Set : A:\766.43 Sequence Listing.txt
Output Set: N:\CRF3\04042002\1749728B.raw

L:2270 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:32 L:2273 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:32 L:2276 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:32 L:2279 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ:ID:32 L:2282 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:32 L:2285 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:32 L:2288 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:32 L:2291 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:32 L:2299 M:283 W: Missing Blank Line separator, <220> field identifier L:2301 M:283 W: Missing Blank Line separator, <400> field identifier L:3142 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:71 L:3153 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:72 L:3164 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:73 L:3175 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:74 L:3186 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:75 L:3197 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:76 L:3208 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:77 L:3219 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:78 L:3230 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:79 L:3241 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:80